

## ABSTRACT

An electronic circuit for the direct conversion of a capacitive transducer signal to a digital delta-sigma bit stream is disclosed. The electronic circuit is comprised of two functional blocks, in which the variable transducer capacitance is first transformed and represented by a frequency modulated (FM) signal by a variable frequency oscillator, and subsequently converted to a digital delta-sigma representation using a frequency delta-sigma modulator. The electronic circuit eliminates any need for analog components in conjunction with the capacitive transducer, and hence simplifies the front-end circuit for applications where digital signal processing (DSP) is used. The output bit stream of the electronic circuit is similar to other analog to digital delta-sigma converters, and can therefore be processed using similar digital techniques.